data = information

Personal

VB SQL

5 mins

how

age ♀ name ✓ contact vehicle

cinema wt ht cost

salary expenses

↳ excel

companies → T-shirts → ? ? ??

storing → audit ? ? ?

→ data science

Data is the new oil . AI → great data

AI new LLM ↗ H/w acc

↳ Data

sugar, salt → store →

data → store → container → database ✓

SQL

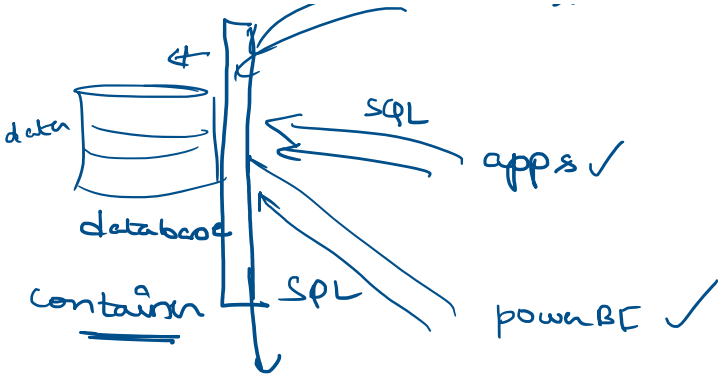
↓↓↓

Communicate

SQL ✓

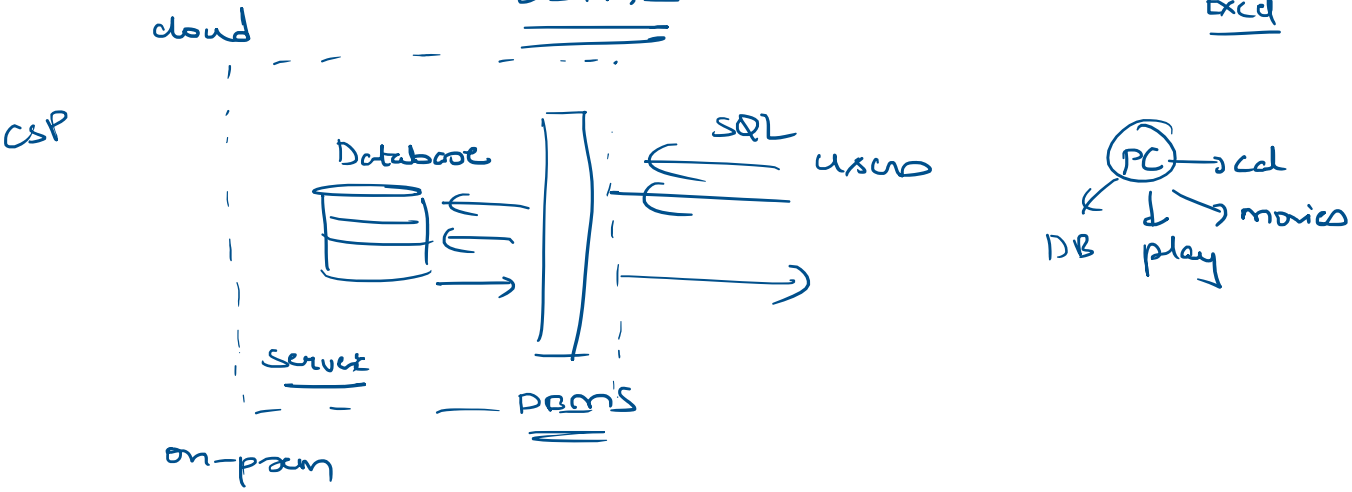
SeQuel

SQL humans ✓ persona



DBMS

Excel

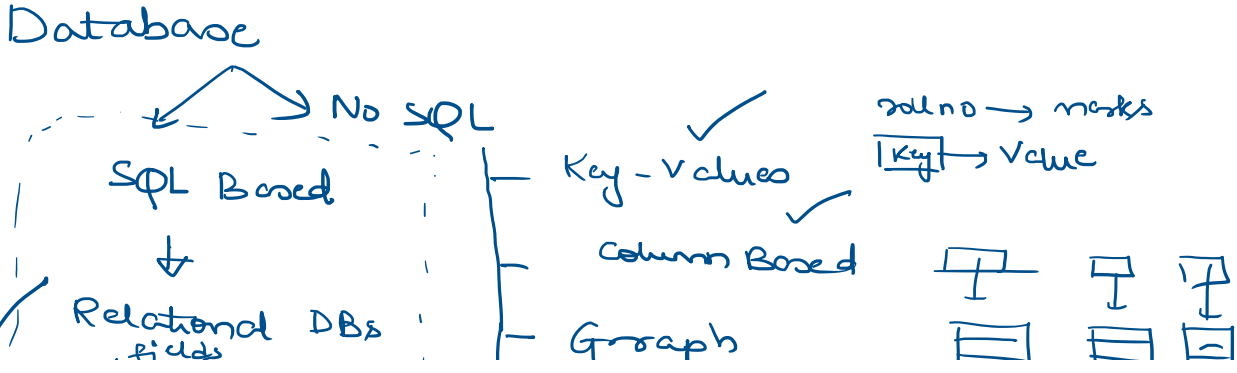


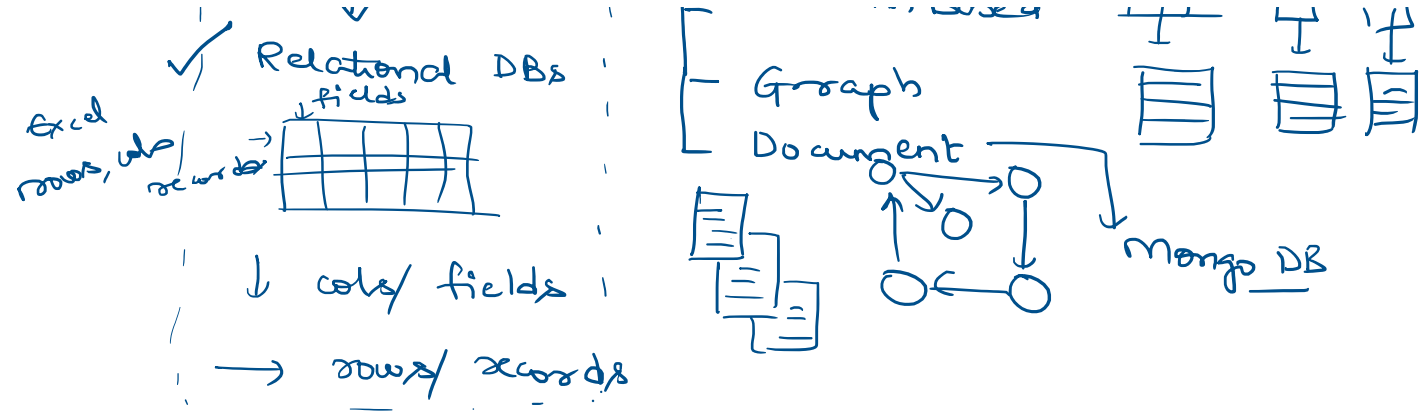
Database → stores data

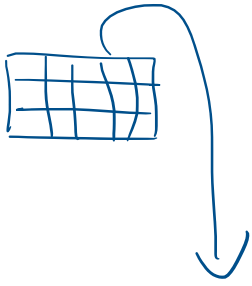
✓ SQL → speak to database

DBMS → manages/handles requests to database

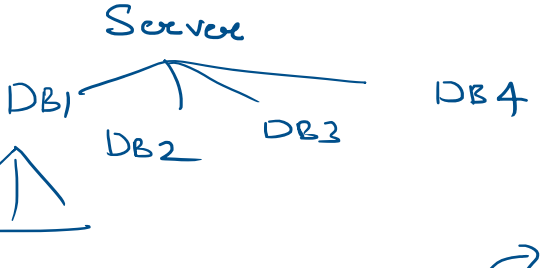
server → computer where the database is hosted.

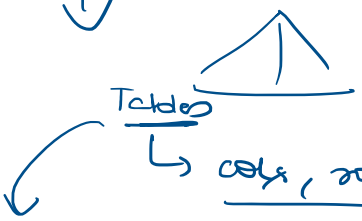






SQL DBs structure





Random ✗

Blueprint ✓ →

datatime text

char varchar

SQL → Rel DBs

- DDL /// → create ✓ drop ✓ alter ✓
- DQL → SELECT
- DML → insert, delete, update

DBs
Tables

Students DBs
marks

20

Education

Section :-

DB – folder → files ✓

container

tables

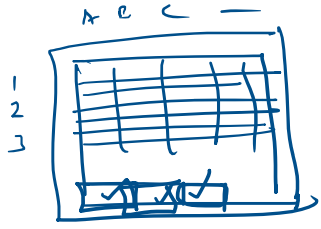
int a = 1; ✓

Int b = 2; X

create DATABASE databasename ;

→ create database name ;

→ CREATE DATABASE NAME ;

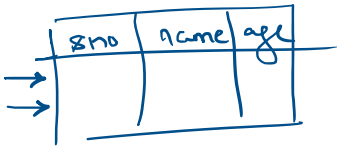


Analogy :- DB – Excel file

Tables – sheets

muscle memory

Table → rows & columns ✓



structure → columns → fields

records → rows

Tables X → DB ✓

Records X → Table / structure

create table ?

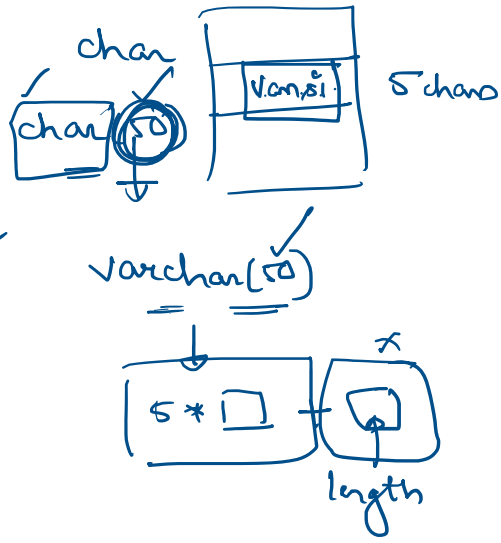
use DBNAME ;

use schoolDB ;

create table tablename (

} structure → columns names & types ✓

);



strings

ASCII

char ~ varchar

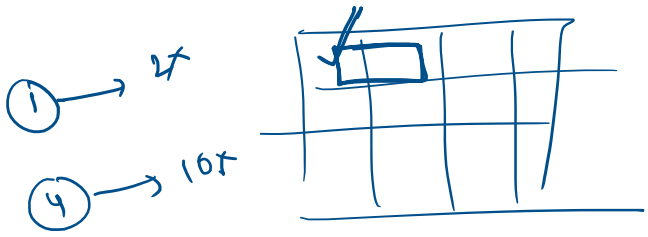
UNICODE

nvarchar

char(n)

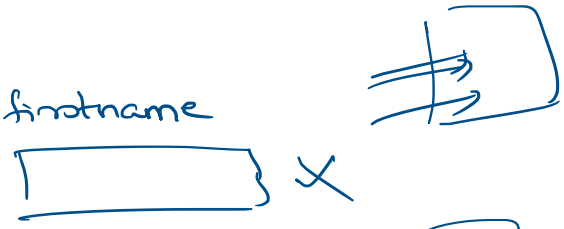
varchar(50)

CS → DBMS subject



primary key

column → unique for all rows



Data Type	Description	Example
INT	Whole numbers	1, 100, -5
FLOAT	Decimal numbers	12.5, 99.99
VARCHAR(n)	Text up to n characters	'Hello', 'Amit'
CHAR(n)	Fixed-length string	'M', 'F'
DATE	Only date	'2025-06-26'
DATETIME	Date + Time	'2025-06-26 08:30:00'
BIT	Boolean (0 or 1)	0 = false, 1 = true

Column

Gmail ✓

Structure

↳ changes

→ alter ✓

```
ALTER TABLE name ✓
ADD Email VARCHAR(100)
```

add a new column → add →

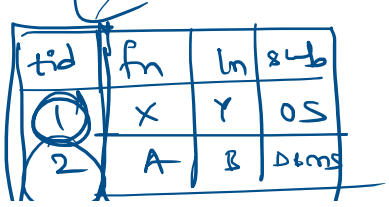
change / modify existing column → alter column ✓

rename → sp_rename exec ✓

drop ✗

insert into tablename VALUES (✓)

FK



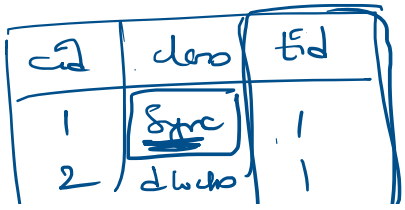
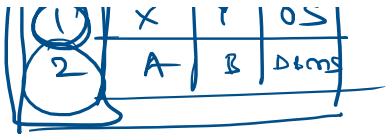


table → desc

↓



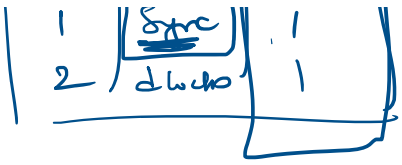


table → drop

↓

foreign key

PK

Column ref PK in another table ✓

FK

alter → table struc change

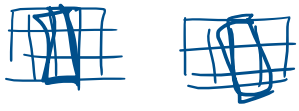
update → table values change

SQL struc → cond → check ✓

conds → where ✓

4/8

Joins ✓ — way to combine two (or more) tables based on some related column.



Joins
- cross join (cartesian product)
- inner join
- left join
- right join
- outer join

30 mins

Inner join

students, classes → classID ✓

→ common ga unna records ✓

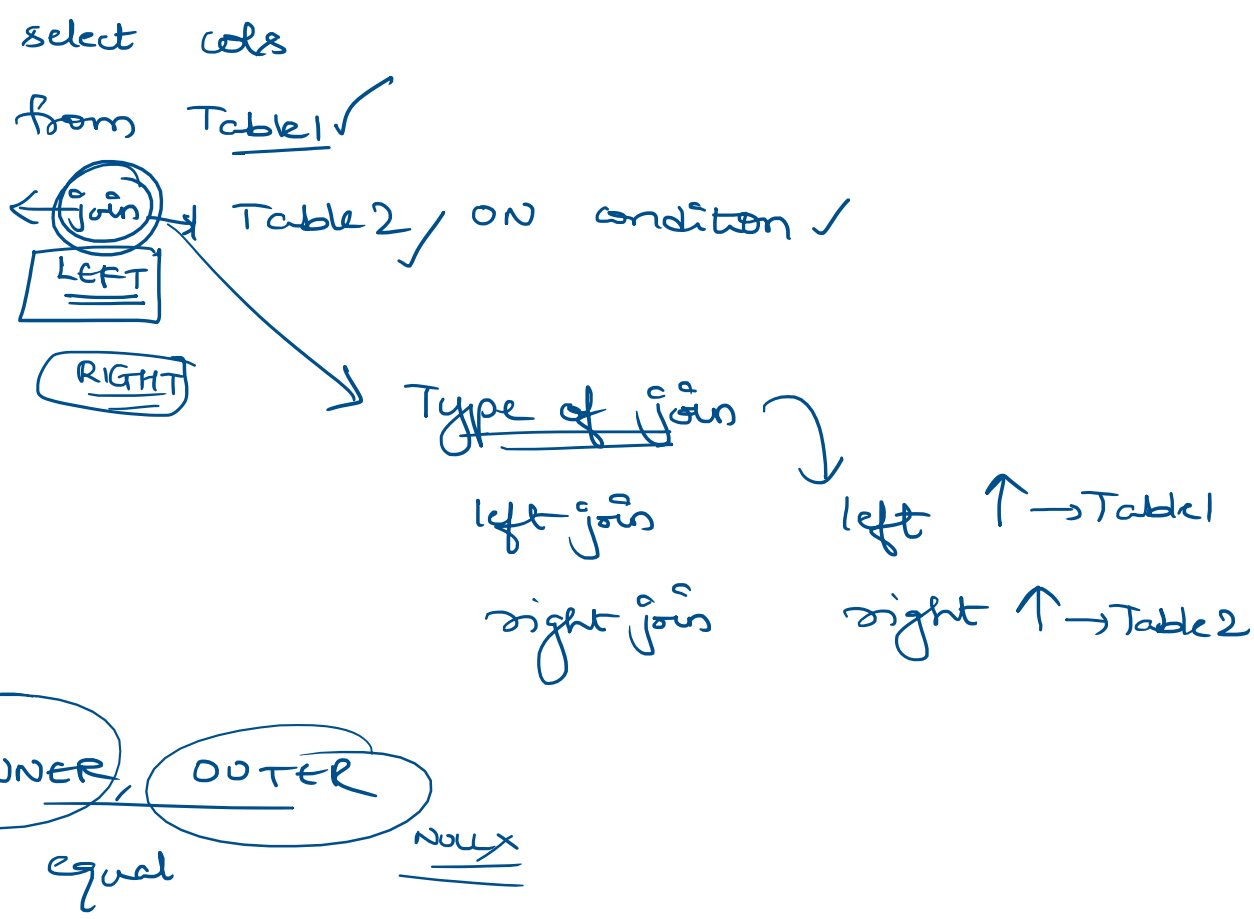
select a, b from Table

↓

a, b → columns ✓

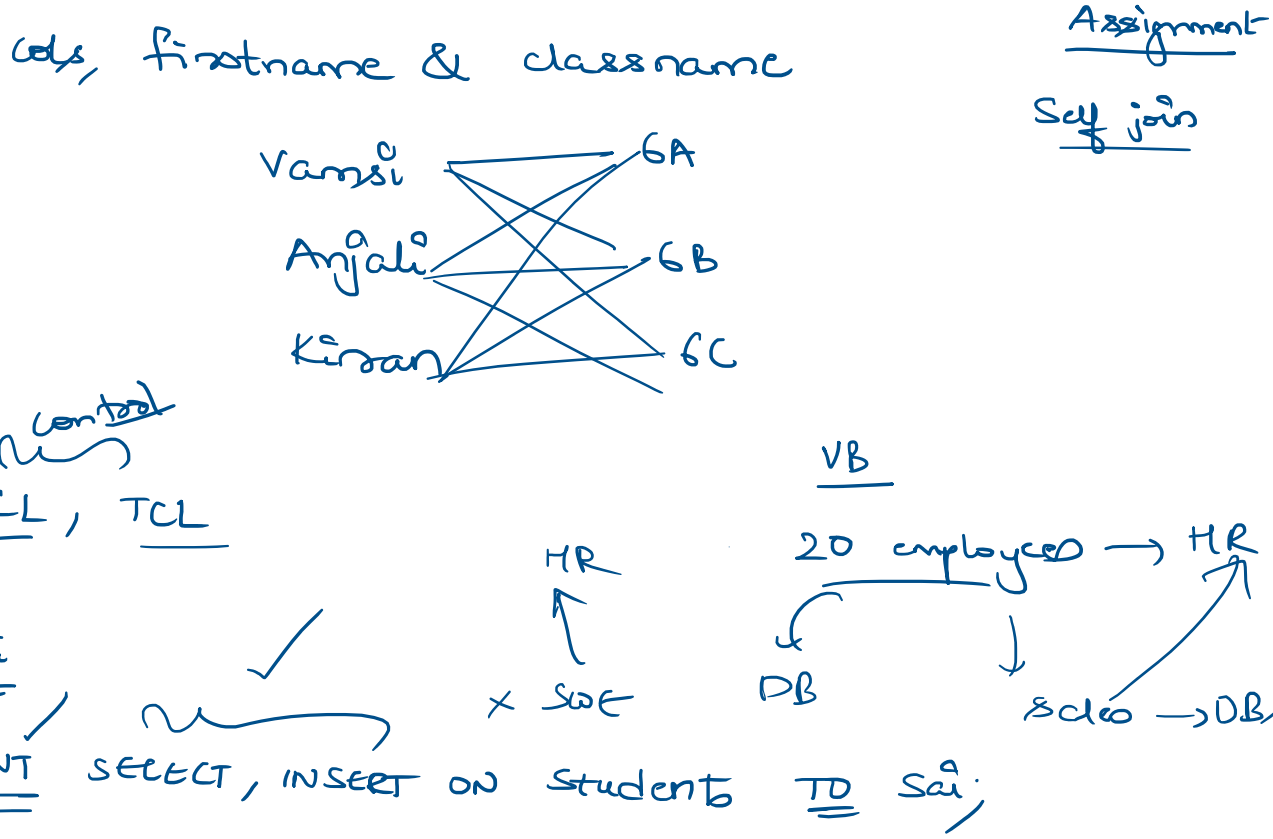
Cond X → cartesian product ✓

LEFT Join



StudentID	FirstName	LastName	Age	Gender	ClassID
1	Vamsi	Bhavani	13	M	101
2	Anjali	Rao	12	F	102
3	Kiran	Sharma	13	M	NULL

ClassId	ClassName	TeacherId
101	6A	1
102	6B	2
103	6C	NULL



REVOKE INSERT ON students FROM Sai;

TCL → DBMS → 10 videos ✓ → Transactions ✓ ACID ✓

VB Bank DB

A → 1000 − 500 → 500 ; 500 + 500 → 1000

B → 500

op1 → A − 500 ✓ ; B + 500 ✓

DCL → Grant, Revoke

TCL → BT, C, R

BEGIN TRANSACTION ✓

UNDO = op1 ✓ ✓ ; op2 ✗ ✓

COMMIT ✓ ; ROLLBACK

Concurrency

Begin Transaction

```
UPDATE Accounts
SET Balance = Balance - 500
WHERE AccountID = 1;
```

ROLLBACK ✓

```
UPDATE Accounts
SET Balance = Balance + 500
WHERE AccountID = 2;
```

COMMIT;

DCL → ✓

DDL → ✓

DML → ✓

DQL → Select

Views

Virtual table

stores the result

DQL ⟶ select

password

TCL ⟶

✓ ① ② ✓

✓ ③

Stores the result of an SQL select query ✓

pull

Anjali ⟶ db save ✗

Views ↺ Updatable views

Non updatable views

Updatable views ⟶ Join, Group by, having, aggregate, distinct

select * from where

Great view ✓

Select * from view,

Alter view

Drop view

indexes, Rows

functions

4 parts - SQL

- Hackerrank SQL

- Online rounds / Interview

inner queries

CTEs

max earning = months x salary

Vansi	2	3	→	6
Bharathi	3	2	→	6
ABC	1	1	→	1

1000

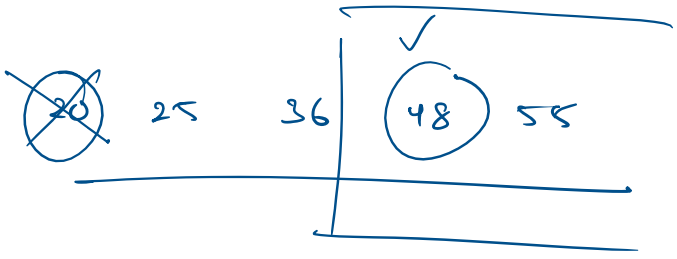
1, 6, 6 → 6

6 2

1 que → 2 tasks → (1) max salary? → query

(2) employees how many? → query

inner queries / nested queries



CTE - Common Table Expression

virtual table

WITH clauses

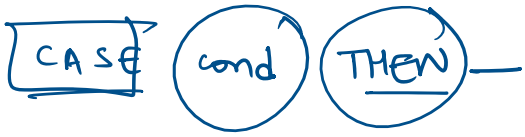
CTEname

8-10 → sort Name

1-7 → sort Marks

if else if else

1- ₹ ⟶ sort Marks



CASE cond THEN ___ END

WHEN Grade ≥ 8 THEN Name END asc

Sec 5

6 SQL Hackerrank

↳ Adv SQL

1 → 10

* 1 ✓, 2 ✓, 3 ✓, 4 ×, 5 ✓, 6 ×, 7 ✓, 8 ×, 9 ×, 10 ×

1 to 1000

2 & 3 . . .

1 to 1000

C | C++ | Java | Python | pwn boy

loops

repeat

SQL → looping

WHILE

1 ✓ n ✓ kakunda divisible

1 ✓ n ✓ → ? → Prime ✗

0

WHILE ✓ condition ✓ True ✓

BEGIN

repeat logic ✓

END

variables ✓

SQL

Declaration of variable,

assignment of value

DECLARE @var1 INT ;

type

SELECT @var1 = 10 ;

value ✓

```
DECLARE @counter INT;
SELECT @counter = 1;
WHILE @counter <= 5
BEGIN
    SELECT * from TABLE;
    SELECT @counter = @counter + 1;
END
```

5 times print ✓

1 and n

1 to 1000

n-1 -1-1-1 > 1

1 to n-1

1,1

1 to n-1

1 to 2

n = 6 ✓ 2,3 ✓

n-1 = 5 ✗ 4 ✗ 3 ✓ > 1

-1 -1

1 to n-1

3

1 to 3

2 ✓

3 ✗

IF cond1

—— if true cond1

ELSE IF cond2

—— cond1 ✗ cond2 ✓

ELSE

—— cond1 ✗ cond2 ✗

Resourcefulness ✓

1 — (7) SQL aspects

mock interviews — theory ✓

flow — intro — question — challenges — practical

th pr

question ✓

1. SQL ✓ — Practise Hackerrank SQL

DSA

2. DBMS (CSE/IS) — 10 video VB

(core)

3. Next domain ✓

a) Data analyst / BI roles

i — excel ✓

ii — power BI / Tableau

iii — stats / data analysis

iv — python

v — ETL tools ✓

b) Data Science ✓

i — python

ii — maths — LA, Prob, Stats, Calc ✓

iii – ML Algo

iv – Cloud platforms AWS / GCP / Azure (optional)

(c) Backend / Full stack – WebDev ✓

SQL

i – MERN (JS), pjango (Python), (Java) Springboot ✓

ii – APIs & CRUD Ops

iii – ORMs (object Relational Mapping)

iv – DB design & normalization

v – Git ✓

(8) ✓

Description

(1) pdf ✓

✓ Content ↑

Courses ↓

– 8

1–2x people

(2) 100 types of SQL questions

Windows func (Bonus)

chatgpt ✓

Recursive CTEs, Practical normalization, transactions